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ABSTRACT:

PROBLEM TO BE SOLVED: To improve the effect on the direction of a game by varying musical pieces played for each game machine unit composing a communication game system in accordance with the state of the game when necessary and making them establish as one musical piece for the entire network game system.

SOLUTION: A play data memory 80 that stores a play data train composing musical pieces, a main CPU that detects a game status for each game machine unit, a sequencer 40 that selects musical pieces corresponding to the game status from the main CPU, from the play data memory 80, and a PCM sound source or the like that plays synchronously among a plurality of game machine units selected in the sequencer 40.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the communication link game system which performs a musical piece as background music (this is hereafter called BGM for short.) especially in a game machine unit about the communication link game system which comes to connect two or more game machine units to which each has a substrate by means of communications.

[0002]

[Description of the Prior Art] Recently, two or more sets of game machine units are connected by means of communications, and the communication link game system by which two or more players attached to each game machine unit enabled it to enjoy a game in the same game space has appeared.

[0003] As for the game machine unit which constitutes such a communication link game system, it is common to reproduce from the loudspeaker etc. by setting a certain musical piece to BGM during game advance. This is because it is going to raise not only vision but an acoustic sense using the fun of a game.

[0004]

[Problem(s) to be Solved by the Invention] However, the conventional communication link game system had a limitation in the class of refreshable BGM, and since playback sequence was moreover defined uniformly, it had repeated the same musical piece. In this, in spite of having reproduced the musical piece as BGM, the fun of a game will be raised from an acoustic sense.

[0005] The 1st purpose of this invention is by changing the musical piece performed in the game machine unit which constitutes a communication link game system at any time in view of the above according to the game situation of a player to heighten the effectiveness on the production to each player.

[0006] The 2nd purpose of this invention is by making it realized as one musical piece by using as the whole communication link game system the musical piece performed as BGM for every game machine unit which constitutes a communication link game system to heighten the effectiveness on game production by the whole communication link game system.

[0007]

[Means for Solving the Problem] (1) In the communication link game system which connects two or more game machine units by the means of communications which performs two or more game machine unit communication procedures, and the means of communications concerned, and performs a musical piece in two or more game machine units concerned A performance data storage means to memorize the performance data stream which constitutes said musical piece, A status detection means to detect a game situation for said every game machine unit, The communication link game system characterized by having a musical piece selection means to choose the musical piece according to the game situation from the status detection means concerned from said performance data storage means, and a performance means to synchronize the musical piece chosen with the musical piece selection means concerned in said two or more game machine units, and to perform it.

[0008] (2) It is a communication link game system given in (1) characterized by for said performance means to include a performance starting position generating means generate the information which shows the location which starts a performance from the signal used as the timing performed in said game machine unit, and a musical piece performance means perform a musical piece from the performance data of the location corresponding to the information generated with the performance starting position generating means concerned.

[0009] The performance data stream which constitutes said musical piece for every predetermined data length (3) A break, A mode allotment means to have attached the label for every break concerned, to have memorized for said performance data storage means, and to assign the master mode or slave mode on performance processing to said two or more game machine units, The correspondence table on which said performance starting position generating means consists of counted value used as the timing performed in the game machine unit which said mode allotment means set as the slave mode, and a label given to said performance data storage means, A label selection means to choose the label in which the location which starts a performance is shown from the counted value which said mode allotment means counted according to the advance situation of the musical piece performed in the game machine unit set as the master mode, and the counted value specified on said correspondence table is included. (1) to which said musical piece performance means is characterized by performing a musical piece from the performance data of the location corresponding to the label chosen with said label selection means, or a communication link game system given in (2).

[0010] (4) Said musical piece performance means is the communication link game system of any 1 given in (1) - (3) characterized by having a sound-volume modification means to change sound volume according to the number which constitutes a team. Thereby, the musical piece corresponding to a specific game situation cannot be heard greatly beyond the need.

[0011] (5) Said musical piece performance means is a communication link game system given in (4) characterized by making sound volume regularity irrespective of the number which constitutes a team according to a game situation.

[0012]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail with reference to a drawing. The invention in this application is constituted so that two or more game machine units may be connected by the communication line and the predetermined purpose may be attained. In the following explanation, the example equipped with two or more game machine units in which each has a control panel for two persons is explained.

[0013] The communication link game system of the gestalt of this operation is formed by being installed in a game center etc. so that two or more sets of game machine units may adjoin each other mutually. Each game machine unit prepares displays, such as a video screen, and the control panel for two persons in the front face of a case, and is constituted, and a predetermined substrate is formed in the interior of each case, respectively.

[0014] Drawing 1 is the block diagram showing the important section configuration of the communication link game system in which the gestalt of operation of this invention was shown. Drawing 2 R> 2 is the data flow diagram having shown the performance condition in a game machine unit. Drawing 3 is the mimetic diagram having shown the sequencer program in the gestalt of operation of this invention. The block diagram shown in drawing 1 expresses as what connected two or more sets of game machine units by the communication line. The game machine unit after the 2nd set is omitting the configuration connected to Main CPU 20. Since this can connect the 2nd set or subsequent ones with the same configuration, it is omitted.

[0015] The substrate carried in each game machine unit has connected a communication module 10, Main CPU 20 and a shared memory 30, a sequencer 40, PCM tone generator 50, D/A converter 60, amplifier 71, a loudspeaker 72, the performance data memory 80, and the tone data memory 90, as shown in drawing 1 R> 1. The outline of each part configuration is explained below.

[0016] A communication module 10 is equivalent to an example of the means of communications as used in the field of a claim, and stores the communications protocol which manages the data communication between substrates. a communication module 10 -- both [ for example, ] the communications protocol for master substrates, and the communications protocol for slave substrates -- although -- it is supplied as a stored common thing.

[0017] Main CPU 20 is equivalent to the mode allotment means and status detection means as used in the field of a claim, and controls the whole game machine unit by controlling management of communication management, game advance, and a game situation, and actuation of a sequencer 40. Main CPU 20 is controlling processing of a sequencer 40 by writing a command etc. in a shared memory 30.

[0018] Main CPU 20 stores the automatic allotment routine of the master slave explained with reference to drawing 4, it is in the condition that each substrate of each other was connected by the communication line, the master slave allotment routine stored in each substrate when the system-wide power source was switched on is performed, and sets the game machine unit which threw in coin first as the master mode on communications processing, and makes it the slave mode on the communications processing of other game machine units. In the gestalt of this operation, the master and slave on communications processing are explained as the master and slave on performance processing as it is. It may not limit to this, the slave on communications processing may be set as the master on performance processing, and the master on communications processing may be set as the slave on performance processing.

[0019] In addition, although the gestalt of this operation explains the case where the master mode or slave mode on a communications protocol is set up, you may be the communications protocol which is not limited to this and does not have distinction of a master mode or a slave mode. In this case, Main CPU 20 will set up the master or slave on performance processing.

[0020] Although not illustrated, two control panels, coin injection sensors, and start buttons are connected with Main CPU 20.

[0021] A shared memory 30 is memory used, sharing between Main CPU 20 and a sequencer 40. The register 34 holding the value which shows how many persons' player is in the team to which the register 31

holding the counted value counted in the game machine unit set as the master mode as shown in a shared memory 30 at drawing 2, the register 32 holding a game situation, the register 33 holding the residual time of a game, and the player set as the master mode belong is formed. if the game machine unit is set as the slave mode, the value of a register 31 will be set from Maine CPU 20 set as the master mode -- things -- \*\* If the game machine unit is set as the master mode, Maine CPU 20 of a self-opportunity will set up the value of a register 31 - a register 34.

[0022] A sequencer 40 is equipped with CPU (not shown), the performance data stream 82 is sent out to PCM tone generator 50, and carries out performance processing, performing processing realized with the flow chart shown by drawing 8 from drawing 5, and is equipped with RAM (not shown) used as a program work-piece field. CPU (not shown) which constitutes a sequencer 40 possesses the timer countable for every frame, and only when it is set as a master mode, it will perform count processing. In one frame, it is the minimum time amount which can be processed by the hardware of the gestalt of this operation, and they are about 1 / 60 seconds.

[0023] Based on the data inputted from the sequencer 40, PCM tone generator 50 reads tone data from the tone data memory 90, generates sound data, and sends them out to D/A converter 60. Here, sound data are data which compounded tone data based on performance data.

[0024] The D/lambd transducer 60 sends out the music signal which carried out D/A conversion of the sound data to amplifier 71. The sound signal amplified with amplifier 71 is reproduced by the loudspeaker 72. In drawing 1, although only amplifier 71 and one loudspeaker 72 are shown, they possess two amplifier 71 and a loudspeaker 72 in fact, and they carry out stereophonic reproduction.

[0025] The performance data memory 80 stores a sequence processing program and the performance data stream 82 in ROM, as shown in drawing 3. For example, the sequence processing program shown in drawing 5 - drawing 8 is realized by describing to a predetermined field, as shown in drawing 3. The program and sound-volume setting table which control PCM tone generator 50 to be able to change sound volume by the number which constitutes a team so that especially drawing 7 may explain are described (refer to drawing 3).

[0026] The musical piece corresponding to a specific game situation is large beyond the need, and the communication link game system of the gestalt of this operation may be heard, when the musical piece corresponding to the same game situation is performed as BGM from two or more game machine units. In order to realize the function adjusted from two or more game machine units that this situation should be avoided so that the musical piece corresponding to the same game situation may become the same as sound volume on audibility, the sound-volume setting table is prepared.

[0027] The sound-volume setting table in the gestalt of this operation adjusts the sound volume on audibility according to the number of the team to which a player belongs. A sound-volume setting table is performed at 70% on audibility to the standard sound volume set up when the number which constitutes a team was four persons and it played by one person. When the number which constitutes a team is three persons, it performs with 80% of the maximum sound volume on audibility to standard sound volume, and when the number which constitutes a team is two persons, it has set up so that it may perform with 90% of the maximum sound volume on audibility to standard sound volume. Standard sound volume is suitably set up according to installation environments, such as a game center.

[0028] The musical piece by which, as for the sound-volume setting table in the gestalt of this operation, a game situation is performed as BGM in "it having died" or the event of "having taken the diamond" is set as standard sound volume.

[0029] The performance data stream 82 has stored in the performance data memory 80 the data for controlling the data and the PCM tone generator which were rewritten from the score to score data as shown in drawing 2. As shown in drawing 2, division \*\*\*\*\* of the performance data stream 82 has been carried out for every musical piece like "it won", a "diamond", "DEAD", and "just before termination." Thereby according to a game situation, a musical piece can be chosen and read.

[0030] The performance data stream 82 which constitutes the musical piece mentioned above is divided into the performance data 1, the performance data 2, the performance data 3, and the performance data 4 for every amount of data of 0.9 seconds equivalent to 1/2 vibrant tune. LABEL#1, LABEL#2, LABEL#3, and LABEL#4 are inserted for every head of the performance data 1 divided into the amount of data equivalent to these 1/2 vibrant tunes, the performance data 2, the performance data 3, and the performance data 4. If performance data are read from the location of this LABER\*\*N, a performance will be started from one for every 1/2 vibrant tune of locations. Even if sound volume changes to this timing, human being's acoustic sense can be made to appreciate comfortably. Moreover, the reason the performance data stream 82 is score

data is convenient for controlling the performance time amount of the performance data stream divided with the label.

[0031] It is because the time interval which is not conscious of the musical piece adopted as BGM having been equivalent to 1.8 seconds per one vibrant tune, it having been less than 1 second when it was the one half, and human being having been kept waiting divided the performance data stream 82 every 1/2 vibrant tune in the gestalt of this operation. Therefore, if it is the time interval which is not conscious of human being having been kept waiting, the unit which divides the performance data stream 82 will not be limited to 1/2 vibrant tune. For example, as long as it is the musical piece of three rhythm, 1/3 vibrant tune is sufficient.

[0032] The tone data memory 90 is sampling data used by PCM tone generator 50, for example, is sound data which sampled the sound of a piano, a violin, etc. Moreover, as sound data, what sampled the so-called sound effects, such as a sound of a wave, a rain sound, and a cry of an animal, for example may be used. In this case, a sound effect can also be made generated in the condition of having synchronized in two or more game machine units.

[0033] Next, the procedure of automatic allotment of a master slave is explained with reference to drawing 4. Drawing 4 is the flow chart which showed the master slave allotment routine. If a power source is supplied to a system, a master slave allotment routine will operate in the substrate carried in each game machine unit, and the standby process of hardware will be performed in each substrate (step 1). Once making the mode of each communication module 10 into a reset mode is included in this standby process.

[0034] Maine CPU 20 judges whether coin was thrown in or not (step 2). It checks whether if it detects that coin was thrown in at step 2, the game machine unit already set as the master mode is in Maine CPU 20 (step 3). If it judges that the game machine unit still set as the master mode at step 3 is not in Maine CPU 20, processing which becomes a master will be performed (step 4) and it will connect that Maine CPU 20 becomes a master mode to other game machine units (step 5). By this, Maine CPU 20 will set a communication module 10 as a master mode, and will perform the communications protocol for master substrates.

[0035] On the other hand, Maine CPU 20 will carry out processing which becomes a slave, if it checks that a master already exists at step 3 (step 6). By this, Maine CPU 20 will set a communication module 10 as a slave mode, and will start the communications protocol for slave substrates.

[0036] Maine CPU 20 will end this routine, after finishing processing of step 5 or step 6 mentioned above. According to the gestalt of this operation, the game machine unit into which coin was first thrown among two or more game machine units connected by the communication line will be made into the master on a communications protocol as mentioned above.

[0037] Drawing 5 is a flow chart which shows the performance main routine of the musical piece in the gestalt of this operation, drawing 6 is a flow chart which shows a music selection processing subroutine, drawing 7 is a flow chart which shows a volume control processing subroutine, and drawing 8 is a flow chart which shows a music performance initiation subroutine.

[0038] Next, the performance processing at the time of setting a game machine unit as a master mode is explained with reference to drawing 5 - drawing 8. If the performance main routine of the musical piece shown in drawing 5 is started after a sequencer 40 is set as a master mode by the allotment routine of the master slave shown in drawing 4, it will be judged to be a master mode at step 11, and will initialize a counter to 0 (step 12). A sequencer 40 judges whether it is the renewal timing of music with reference to the timer which carried out internal organs (step 13).

[0039] If it judges that a sequencer 40 is the renewal timing of music at step 13, a music selection processing subroutine will be performed (step 14). If the music selection processing subroutine which shows a sequencer 40 to drawing 6 if music selection processing of step 14 shown in drawing 5 is concretely explained with reference to drawing 6 and drawing 2 is started, it will judge whether it is just before game termination (step 141). (are there 15 seconds or more till game termination or not?)

[0040] If it judges that a sequencer 40 is not just before game termination at step 141 (there are 15 seconds or more till game termination), with reference to the value of the built-in timer, it will judge whether it is middle check timing (step 142).

[0041] If it judges that a sequencer 40 is middle check timing at step 142, with reference to the contents of the register 32 in which the game situation of a shared memory 30 is shown, it will judge any of a musical piece "DEAD" or a "diamond" they are (step 143).

[0042] A sequencer 40 will make music selection from from among the musical piece "DEAD" memorized by the performance data memory 80 as shown in drawing 2, or a musical piece "a diamond", if it judges

that the contents of the register 32 are either "DEAD" or a "diamond" at step 143 (step 144, step 145, step 146). When the situation of this is either "it having died" or "having taken the diamond", a sequencer 40 will change the musical piece which is middle check timing and which is performed as BGM every 54 frames.

[0043] A sequencer 40 will end this subroutine and it will progress to processing of step 15 shown in drawing 5.

[0044] By a series of processings which consist of the above-mentioned step 142 - step 146, it will carry out with a time interval shorter than the usual game situation later mentioned only when a situation is either "it having died" or "having taken the diamond." It is because the reason is that it is necessary to tell a player early if possible since future game plays are interrupted when it dies, for example, and the situation which took the diamond is an important event generated at short spacing during a game play, so it is necessary to tell a player as a musical piece quickly.

[0045] Even if it judges that a sequencer 40 is middle check timing at step 142 on the other hand, it will progress to processing of step 15 in which a sequencer 40 ends the subroutine shown in drawing 6, and shows it to drawing 5, without performing music selection processing if it judges that they are not any of "DEAD" or a "diamond" at step 143, either.

[0046] In addition, with the gestalt of this operation, or it died from middle timing as a game situation of changing a musical piece, it is considering only as the case where a diamond is taken, but as long as it is an event with the need of it not being limited to this and telling a player quickly, you may be what kind of thing.

[0047] Moreover, if it judges that a sequencer 40 is just before game termination (less than 15 seconds to game termination) at step 141, selection processing "just before termination" will be carried out (step 149). By this, this subroutine will be ended and it will progress to processing of step 15 shown in drawing 5.

[0048] If it judges that a sequencer 40 is not middle check timing at step 142, i.e., it is 108 equivalent to one vibrant tune, music selection processing will be performed with reference to the contents of the register 32 of a shared memory 30 (step 144). Specifically, a sequencer 40 will perform selection processing (step 145) of "DEAD", selection processing (step 146) of a "diamond", selection processing (step 147) of "having won", or selection processing (step 148) of "having lost" by music selection processing of step 144 according to the contents of the register 32. Thereby, the usual renewal timing of music and the musical piece specifically performed as BGM every 108 frames can be changed.

[0049] Since each musical piece used with the gestalt of this operation has made II Tempo and \*\* the same thing, even if it changes a musical piece according to a game situation so that it may explain below, the musical piece performed as the whole communication link game system constitutes one musical piece as a whole.

[0050] The game machine unit in the gestalt of this operation tends to heighten the effectiveness on production by modification of the musical piece performed as BGM by telling a game player about one's game situation from an acoustic sense. Adjustment on composition has been carried out so that it may become simple from a gorgeous thing about a musical piece in the lowest order which the 1st place and a team won and in which the team has lost as an approach of heightening the stage effects from this musical piece side. Here, with magnificence, the number of musical sound is made [ many ] and musical sound of a loud-sound region is made [ many ], and the number of musical sound is lessened with plainness, musical sound of a bass region is made [ many ], and it has carried out like accompaniment.

[0051] After a sequencer 40 ends the subroutine shown in drawing 6 after performing the step of either the above-mentioned step 145 - step 148, and it ends processing of the subroutine of step 14 shown in drawing 5, it performs a volume control processing subroutine (step 15).

[0052] The volume control processing subroutine of step 15 shown in drawing 5 is concretely explained with reference to drawing 7 and drawing 2. A sequencer 40 performs the volume control processing subroutine shown in drawing 7, and judges whether it is the music to which sound volume is changed (step 151).

[0053] If it judges that a sequencer 40 is not the music (for example, musical piece chosen when a game situation is the 1st place or the least significant) to which sound volume is changed at step 151, standard sound volume will be chosen (step 155). A sequencer 40 will perform a sound-volume setup, and will end this (step 154) subroutine, and it will progress to step 16 shown in drawing 5. When a game situation is the 1st place or the least significant, it is made to have not operated the sound-volume setting table in the gestalt of this operation. This is because it is surely performed in a single game machine unit by this game situation, so it is made to have performed with the maximum sound volume regardless of the number which

constitutes a team.

[0054] On the other hand, if it judges that a sequencer 40 is music (for example, musical pieces other than the musical piece chosen when a game situation is the 1st place or the least significant) to which sound volume is changed at step 151, the number which constitutes a team with reference to the value of the register 34 of a shared memory 30 will be checked (step 152). A sequencer 40 obtains sound-volume data from the sound-volume setting table currently mentioned above after being based on the value of a register 34 (step 153). A sequencer 40 performs a sound-volume setup (step 154), ends the subroutine shown in drawing 7, and performs the music performance initiation processing subroutine shown in drawing 5 (step 16). According to the volume control subroutine it is indicated to drawing 7 that mentioned above, the musical piece corresponding to a specific game situation is not performed in the amount of Oto beyond the need.

[0055] A sequencer 40 explains concretely the music performance initiation processing subroutine of step 16 shown in drawing 5 with reference to drawing 8. A sequencer 40 will read a counter value from the built-in timer, if the music performance subroutine shown in drawing 8 is started (step 161). A sequencer 40 chooses the starting position of music from the counter value acquired at step 161 (step 162). A sequencer 40 will end the subroutine which starts music performance processing and has been shown in drawing 8 (step 163), and a sequencer 40 will progress to step 17 shown in drawing 6.

[0056] A sequencer 40 is judged [ having set it as the master mode at step 17 shown in drawing 5, and ], and increments the built-in counter (step 18). Main CPU 20 sends out the counted value of a counter to the game machine unit which is in a slave mode through a communication module 10 following this processing. It becomes the counted value written in the register 31 of the shared memory 30 of the game machine unit in the slave mode which this counted value mentions later.

[0057] It judges whether the sequencer 40 ended the music performance after processing of step 18 shown in drawing 5 (step 19). If it judges that the sequencer 40 has not ended the music performance at step 18, a step will be performed after returning to step 13 mentioned above.

[0058] On the other hand, if it judges that the sequencer 40 has ended the music performance at step 19 shown in drawing 5, the main routine shown in drawing 5 will be ended. The above is music performance processing in the game machine unit set as the master mode, and the effectiveness on the production to a player can be heightened by changing the musical piece performed as BGM according to a game situation at any time.

[0059] In addition, music performance processing is not shown in the flow chart shown in drawing 5. Since music performance processing was arranged in parallel with the music selection processing subroutine, the volume control subroutine, etc. and was started by starting of music performance initiation processing, it was not shown from the convenience on a control flow.

[0060] Then, the allotment routine of the master slave shown in drawing 4 explains the music performance processing in the game machine unit set as the slave mode with reference to drawing 5 - drawing 8.

[0061] If the performance main routine shown in drawing 5 is started after it is set as a slave mode by the allotment routine of the master slave shown in drawing 4, a sequencer 40 is judged not to be set as a master mode at step 11, will progress to step 13 and will judge whether it is the renewal timing of music with reference to the register 32 of a shared memory 30. The sequencer 40 hereafter carried in the game machine unit set as the slave mode performs processing shown in drawing 8 and drawing 2 from drawing 5.

[0062] The game machine unit set as each slave mode in the gestalt of this operation Since a musical piece will be performed from the label location corresponding to the counted value counted by the sequencer 40 which constitutes the game machine unit set as the master mode while choosing the musical piece according to a game situation with reference to the register 32 of a shared memory 30 It can synchronize without the musical piece currently performed in the game machine unit set as the game machine unit set as other slave modes, or the master mode, and a time lag.

[0063] A sequencer 40 is judged not to be set as a master mode at step 11 shown in drawing 5, and as mentioned above, it performs processing of step 13 to the step 16. Moreover, it is judged that the sequencer 40 is not set as a master mode at step 17 shown in drawing 5, and it judges whether the music performance was ended (step 19). If it judges that the sequencer 40 has not ended the music performance at step 18, a step will be performed after returning to step 13 mentioned above.

[0064] If it judges that the sequencer 40 has ended the music performance at step 19 shown in drawing 5, the main routine shown in drawing 5 will be ended.

[0065] The above is the control action of performance processing in the game machine unit in a slave mode. The game machine unit set as the slave mode From performing a musical piece from the label

location corresponding to the counted value counted by the sequencer 40 which constitutes the game machine unit set as the master mode, while choosing the musical piece according to a game situation with reference to the register 32 of a shared memory 30. Since it is being able to change the starting position of performance data per 1 / 2 vibrant tune units, or 1 / 3 vibrant tunes, it can synchronize without the musical piece currently performed in the game machine unit set as the game machine unit set as other slave modes, or the master mode, and a time lag.

[0066] In the gestalt of operation mentioned above, Main CPU 20 of the game machine unit set as the master mode counts the time amount to game termination, and Main CPU 20 of the game machine unit set as the slave mode is explained as what does not count the time amount to game termination. It is not limited to this, attracting mode or the initiation timing of a game is got from the game machine unit set as the master mode, for example, and the same effectiveness can be acquired even if it counts the time amount to game termination even in Main CPU 20 of the game machine unit set as the slave mode.

[0067] Therefore, since communication link game SHITEMU in the gestalt of this operation can change the musical piece performed as BGM in accordance with the game situation of each game machine unit at any time, things can be carried out and, moreover, it can also materialize the musical piece for which the effectiveness on production is heightened to the player of each game machine unit and which is performed as the whole communication link game system as one musical piece as a whole.

[0068] Explanation of the gestalt of operation of this invention is finished above. According to the gestalt of the above-mentioned operation, the effectiveness on the production to each player can be heightened as the whole communication link game system by changing the musical piece performed as BGM at any time according to the game situation of each player in a communication link game machine unit. Furthermore, since it is realized as one musical piece by using as the whole communication link game system the musical piece performed as BGM for every game machine unit, the effectiveness on game production can be heightened as the whole communication link game system.

[0069] The communication link game system in the gestalt of operation of the 2nd of this invention is explained. This communication link game system downloads tone data by Main CPU 20. It explains with reference to drawing 9 - drawing 11. Drawing 9 is the block diagram showing the important section configuration of the communication link game system in the gestalt of the 2nd operation. Drawing 10 is the block diagram showing the outline configuration of the sequencer circumference in the gestalt of the 2nd operation. Drawing 11 is the mimetic diagram having shown the DS of the compression tone data in the gestalt of the 2nd operation.

[0070] The communication link game system concerning the modification 2 in the gestalt of this operation is equipped with the same configuration as what is explained with reference to drawing 1, adds defrosting equipment 95 to each game machine unit, and in order to reproduce stream data further, it extends the hard disk controller 120 and hard disk 130 which were connected by LAN which constitutes the download means as used in the field of a claim. In addition, the member of the same configuration as what is the gestalt of this operation and is already explained attaches the same sign, omits explanation, and explains only the newly added configuration.

[0071] Main CPU 20 sends out a command to a hard disk controller 120 through a communication module 10 and a communication module 110, and requires a transfer of required tone data etc. Main CPU 20 has newly added the function which sends out the compression tone data received through the communication module 10, 110 to defrosting equipment 95.

[0072] A sequencer 40 consists of CPU410, performance data are sent out to PCM tone generator 50, it carries out performance processing, performing processing realized with the flow chart shown that it has mentioned above by drawing 5 - drawing 8, and ROM420 which stored the sequence processing program as shown in drawing 10, and RAM430 used as a program work-piece field are used for it.

[0073] The performance data stream 82 is stored in RAM430, and performance data memory 80 is realized, as shown in drawing 10. The performance data stream 82 has described performance data behind the program work-piece field of RAM430 which is equivalent to the performance data memory 80 as shown in drawing 9. The performance initiation check manipulation routine which checks a conversion table 81 and its value is realized by describing in performance data.

[0074] Defrosting equipment 95 elongates the tone data compressed by the compression method of MPEGAudio of a fixed-length method, or the arbitration of a variable-length method, and maps them in the tone data memory 90. There are some which are shown in drawing 11 as DS of the compression tone data which can be processed with defrosting equipment 95. For example, by the block fixed length, as were shown in drawing 11 (a), block variable length shows to the thing of 1 block of one data, and drawing 11



(b) and it is shown in the thing of 1 data two or more blocks, and drawing 11 (c), the thing of 1 data two or more blocks can be considered by block variable length. Drawing 11 (d) shows the structure of a block and consists of a header and compressed data. The contents of the header are the address and the data compression rate at the time of mapping at tone data memory in block variable length, and, in MPEGAudio which serves as a block fixed length, are bit rate indexes etc.

[0075] A communication module 110 makes LAN connection of the hard disk 130 at each game machine unit. A hard disk controller 120 performs read-out control of a hard disk 130, and a hard disk 130 stores tone data and performance data as stream data.

[0076] Since the 2nd operation gestalt can reproduce tone data etc. as stream data from the hard disk 130 by which LAN connection was made with the performance data stored in the tone data beforehand stored in the tone data memory 90 by having the above-mentioned configuration, or the performance data memory 80 Since long tone data which have gone neither into the tone data memory 90 nor the performance data memory 80 are reproducible in addition to the effectiveness in the gestalt of this operation currently mentioned above, a tone etc. can be made into abundance and an effective impression can be given by the player.

[0077]

[Effect of the Invention] This invention was able to heighten the effectiveness on the production to each player by having the above-mentioned configuration by changing the musical piece performed in the game machine unit which constitutes a communication link game system at any time according to the situation on the game of a player. Since this invention was materialized as one musical piece by using as the whole communication link game system the musical piece performed as BGM for every game machine unit which constitutes a communication link game system by having the above-mentioned configuration, it was able to heighten the effectiveness on game production as the whole communication link game system.

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## CLAIMS

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[Claim(s)]

[Claim 1] In the communication link game system which connects two or more game machine units by the means of communications which performs two or more game machine unit communication procedures, and the means of communications concerned, and performs a musical piece in two or more game machine units concerned A performance data storage means to memorize the performance data stream which constitutes said musical piece, A status detection means to detect a game situation for said every game machine unit, The communication link game system characterized by having a musical piece selection means to choose the musical piece according to the game situation from the status detection means concerned from said performance data storage means, and a performance means to synchronize the musical piece chosen with the musical piece selection means concerned in said two or more game machine units, and to perform it.

[Claim 2] Said performance means is the communication link game system according to claim 1 characterized by to include a performance starting position generating means generate the information which shows the location which starts a performance from the signal used as the timing performed in said game machine unit, and a musical piece performance means perform a musical piece from the performance data of the location corresponding to the information generated with the performance starting position generating means concerned.

[Claim 3] The performance data stream which constitutes said musical piece attached the label for every break and break concerned for every predetermined data length, and has memorized it for said performance data storage means. A mode allotment means to assign the master mode or slave mode on performance processing to said two or more game machine units, and said performance starting position generating means The correspondence table which consists of counted value from which said mode allotment means serves as timing performed in the game machine unit set as the slave mode, and a label given to said performance data storage means, A label selection means to choose the label in which the location which starts a performance is shown from the counted value which said mode allotment means counted according to the advance situation of the musical piece performed in the game machine unit set as the master mode, and the counted value specified on said correspondence table is included. The communication link game system according to claim 1 or 2 by which said musical piece performance means is characterized by performing a musical piece from the performance data of the location corresponding to the label chosen with said label selection means.

[Claim 4] Said musical piece performance means is a communication link game system of any 1 according to claim 1 to 3 characterized by having a sound-volume modification means to change sound volume according to the number which constitutes a team.

[Claim 5] Said musical piece performance means is a communication link game system according to claim 4 characterized by making sound volume regularity irrespective of the number which constitutes a team according to a game situation.

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] The block diagram showing the important section configuration of the communication link game system in which the gestalt of operation of this invention was shown

[Drawing 2] The data flow diagram having shown the performance condition in a game machine unit

[Drawing 3] The mimetic diagram having shown the sequencer program in the gestalt of operation of this invention

[Drawing 4] The flow chart which showed the allotment routine of a master slave

[Drawing 5] The flow chart which shows the performance main routine of the musical piece in the gestalt of this operation

[Drawing 6] The flow chart which shows a music selection processing subroutine

[Drawing 7] The flow chart which shows a volume control processing subroutine

[Drawing 8] The flow chart which shows a music performance initiation subroutine

[Drawing 9] The block diagram showing the important section configuration of the communication link game system in the gestalt of the 2nd operation

[Drawing 10] The block diagram showing the outline configuration of the sequencer circumference in the gestalt of the 2nd operation

[Drawing 11] The mimetic diagram having shown the DS of the compression tone data in the gestalt of the 2nd operation

### [Description of Notations]

10,110 Communication module

20 Main CPU

30 Shared Memory

31 Counter

40 Sequencer

50 PCM Tone Generator

60 D/A Converter

71 Amplifier

72 Loudspeaker

80 Performance Memory

81 Conversion Table

82 Performance Data Stream

90 Tone Data Memory

120 Hard Disk Controller

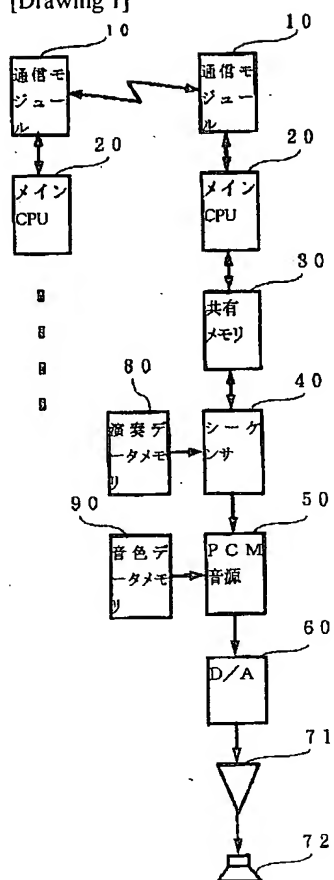
130 Hard Disk

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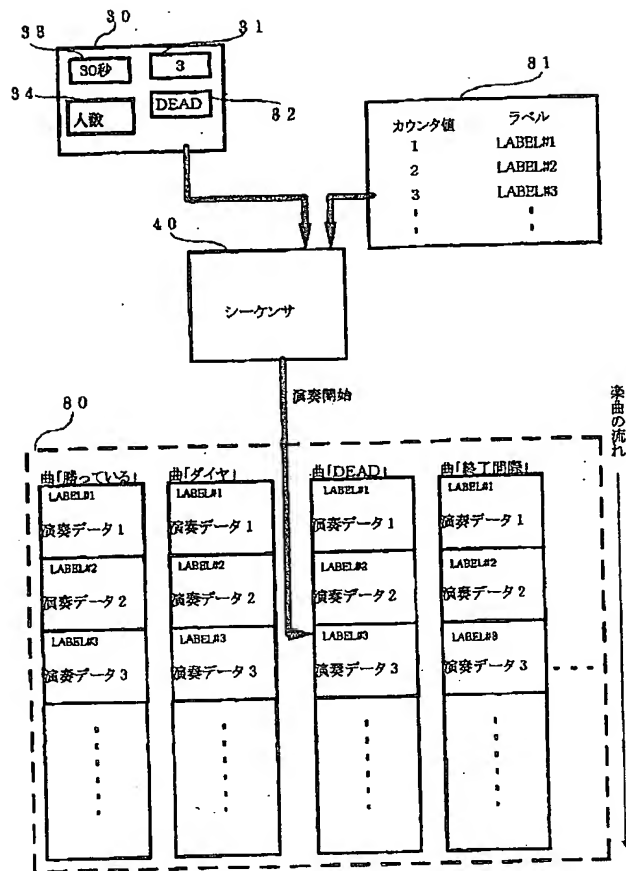
## DRAWINGS

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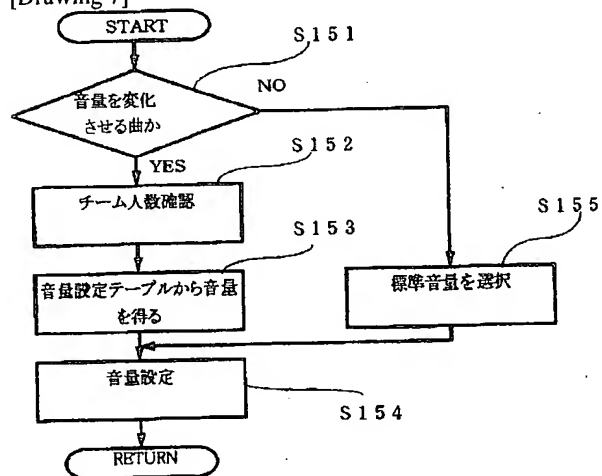
[Drawing 1]



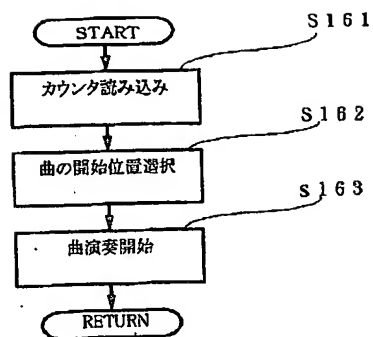
[Drawing 2]



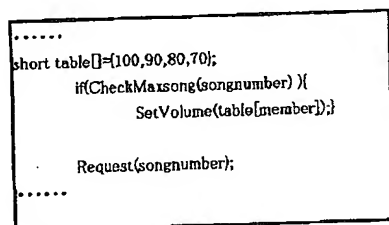
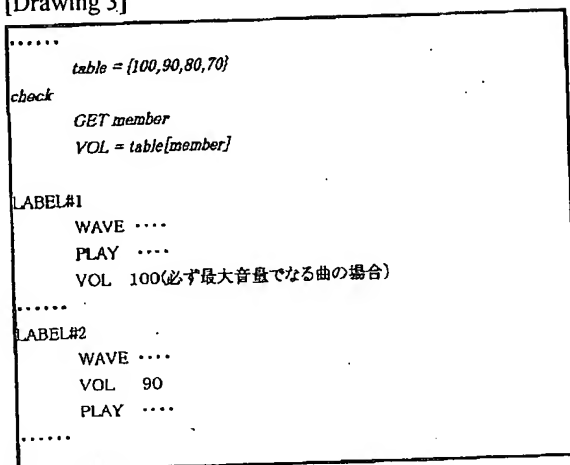
[Drawing 7]



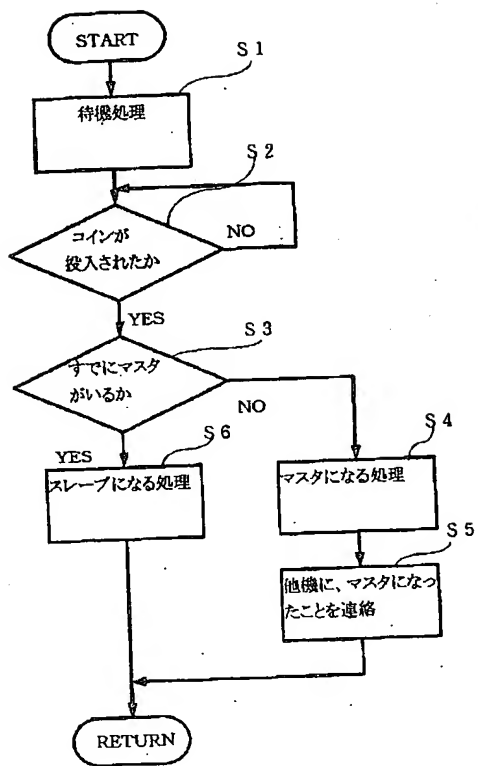
[Drawing 8]



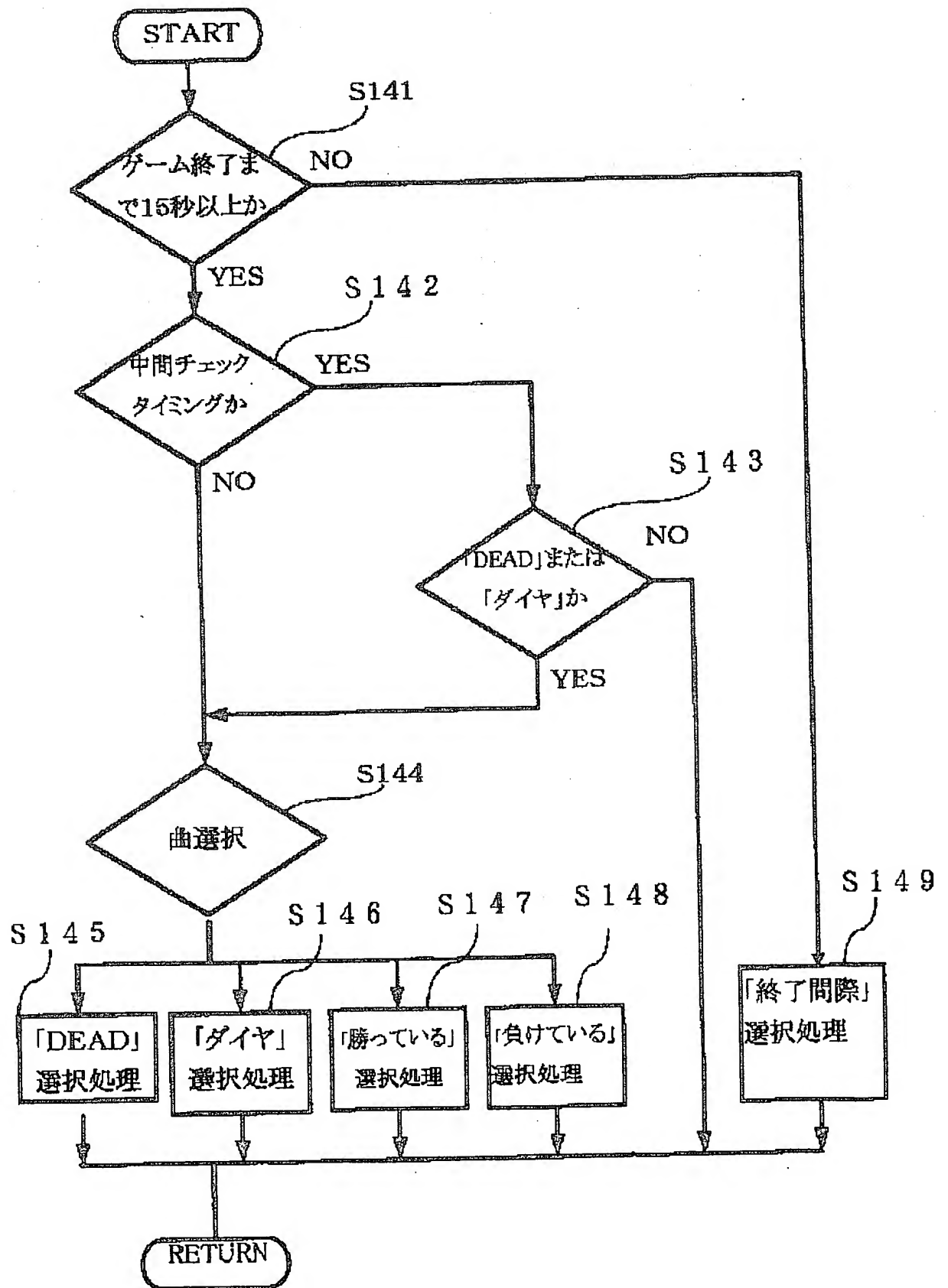
[Drawing 3]



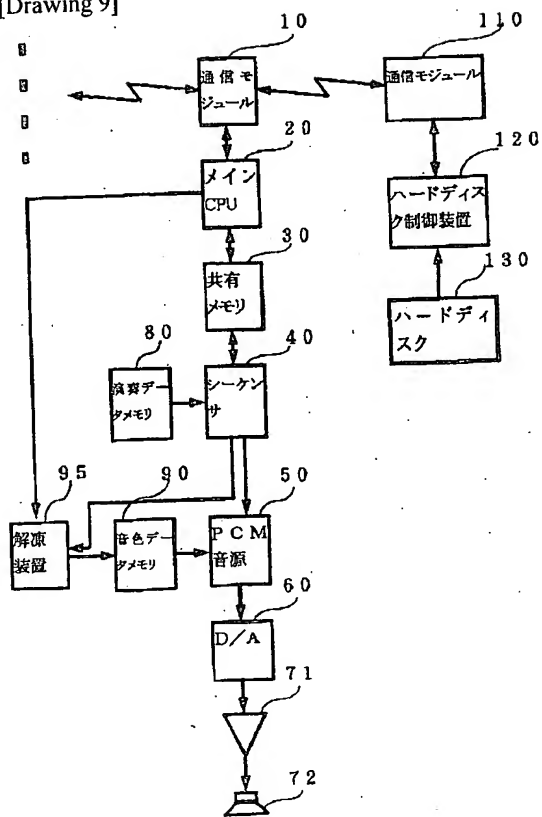
[Drawing 4]



[Drawing 6]

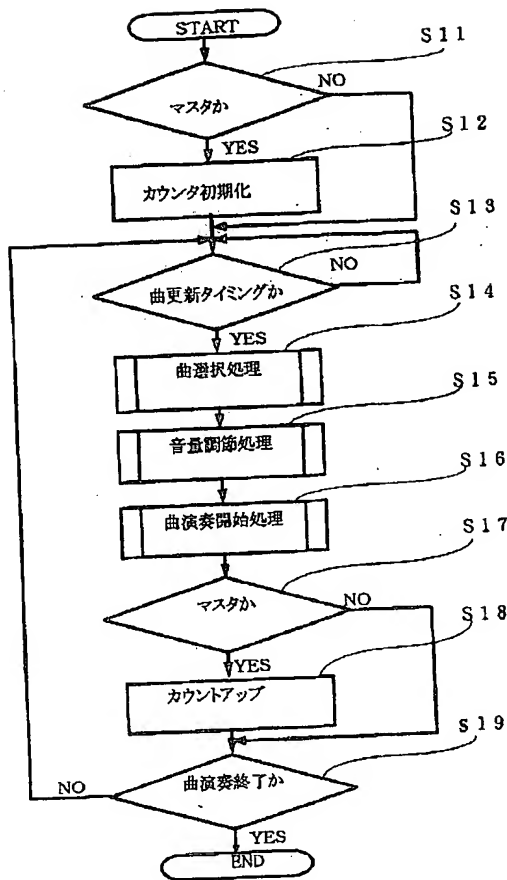


[Drawing 9]

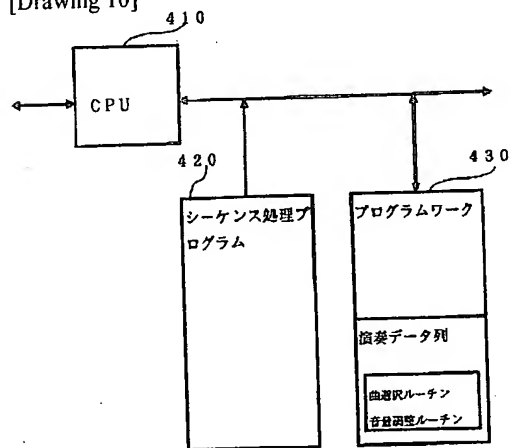


[Drawing 5]

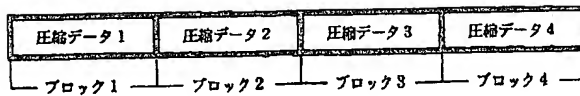




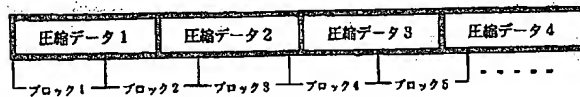
[Drawing 10]



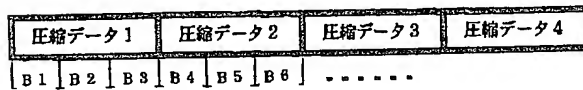
[Drawing 11]



(a)



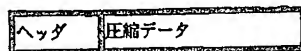
(b)



(c)

図中 B はブロックの略称である。

ブロックの構造



(d)

[Translation done.]